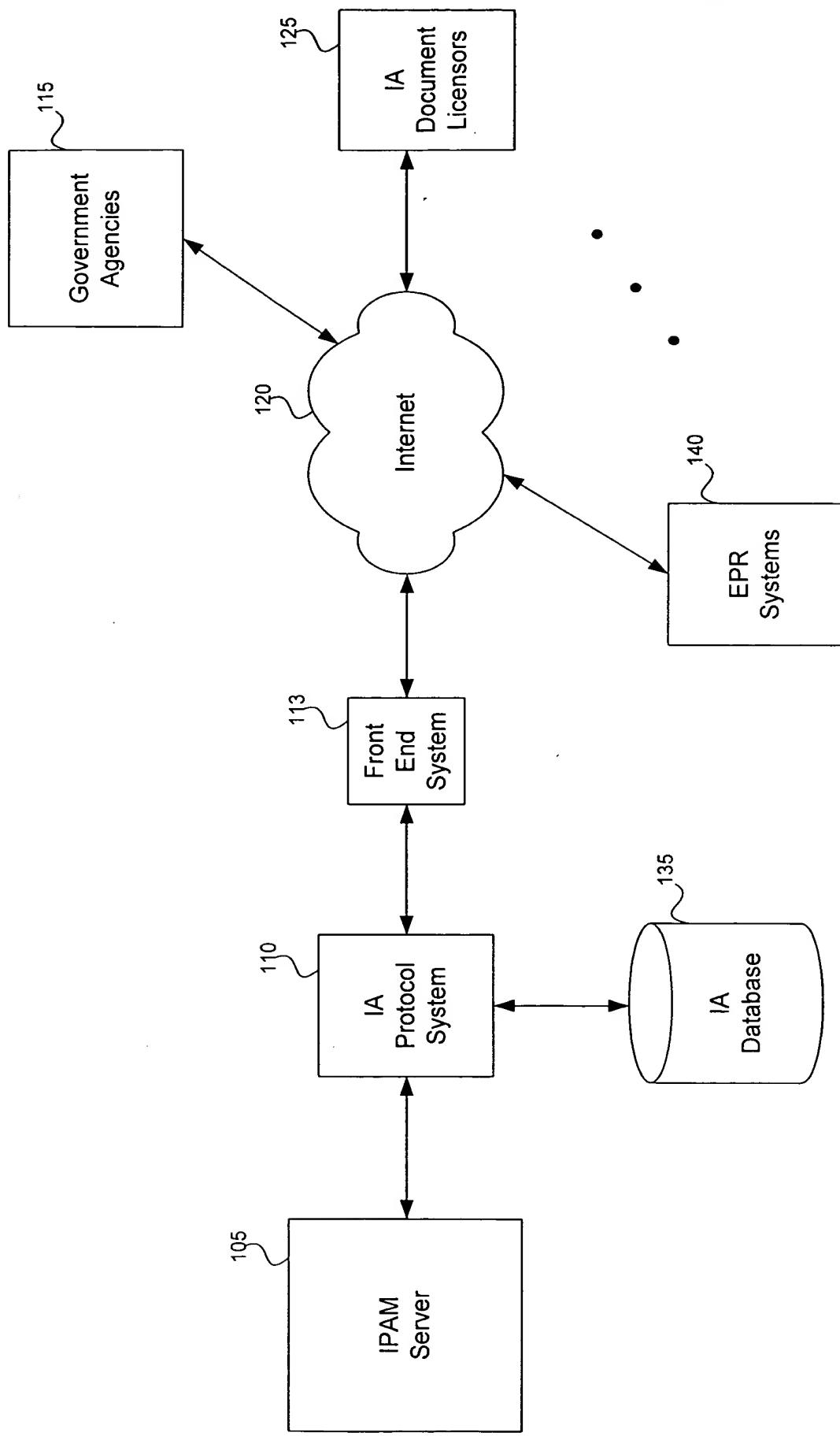


FIG. 1

IA Protocol System 110

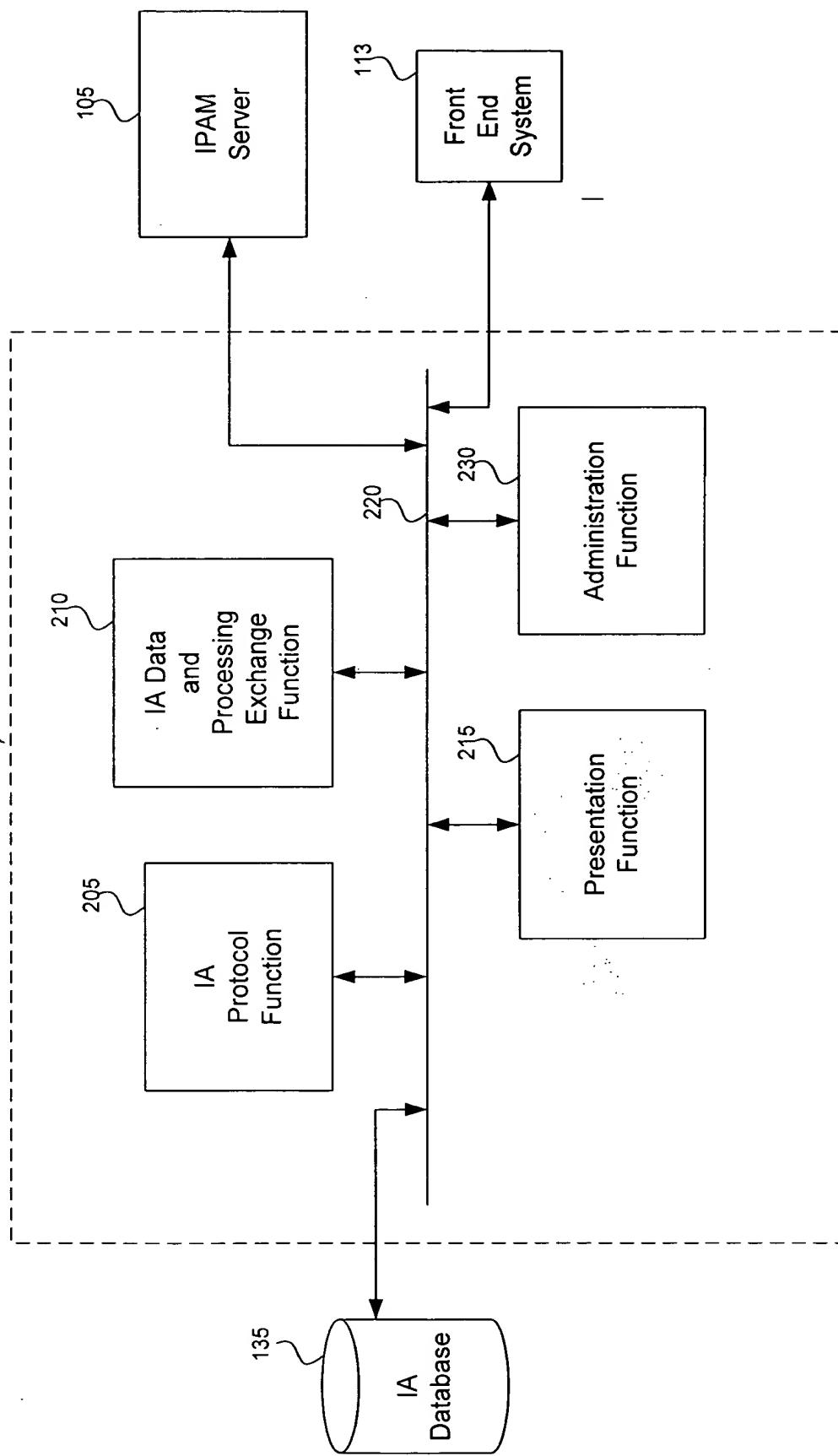


FIG. 2

Computer System 300

Processor 303

Main Memory 305

Secondary Memory 310

Hard Disk Drive 312

Removable Storage
Unit 318

Removable Storage
Unit 322

Interface 320

Communications Interface
324

Bus 302

Communications Path 326

328

FIG. 3

Comprehensive Patent
Markup Language DTD 402

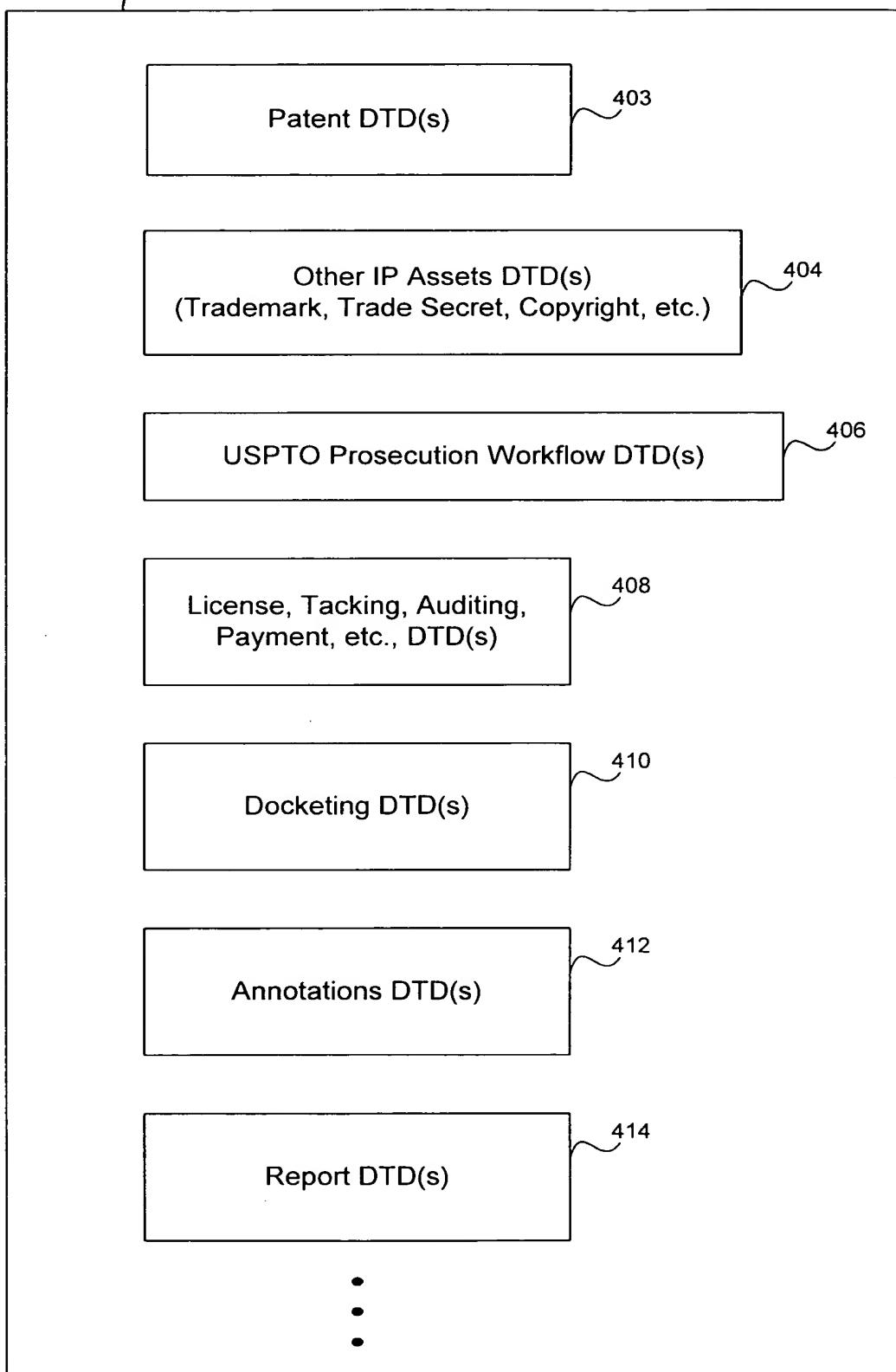


FIG. 4

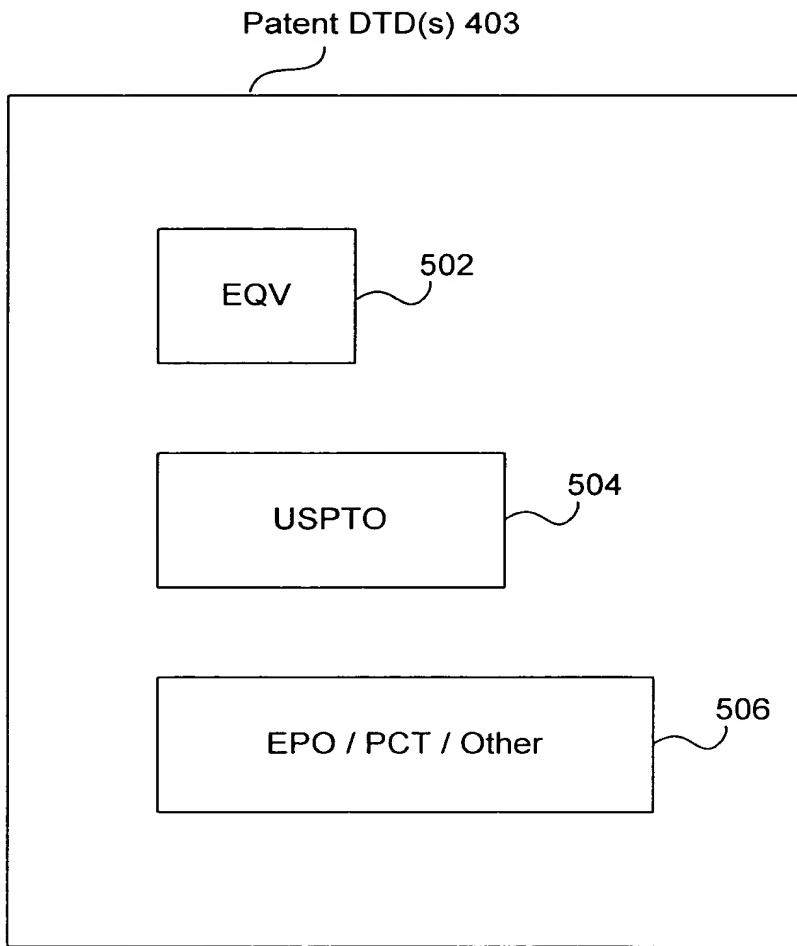


FIG. 5

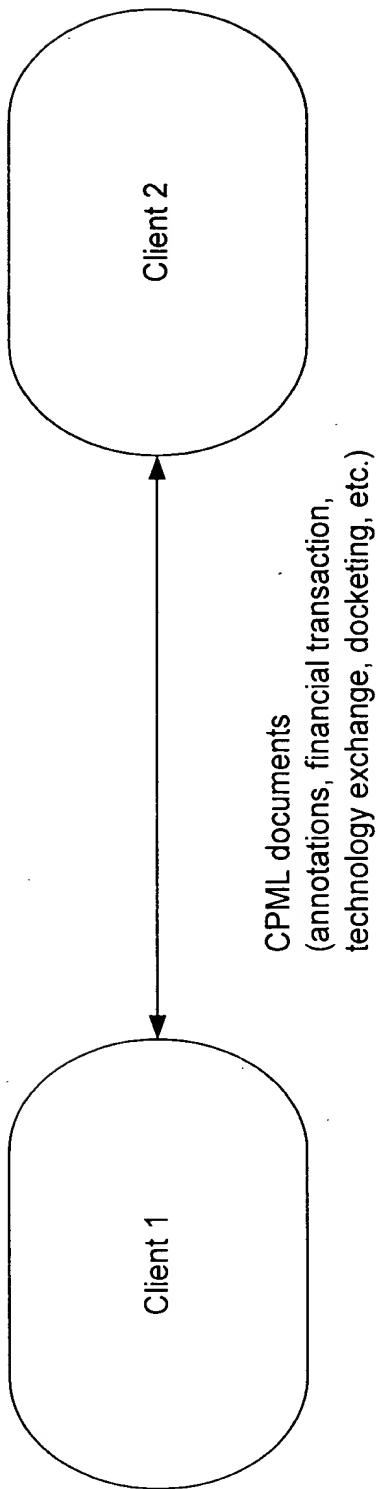


FIG. 6

702

```
<!--
APML version 0.1
Author: Matt Schnitz
```

The goal of v0.1 to include text structure and all bibliographic tags present in the IPAM v6.0 database and indexes.

<!-- Definition of the Patent DOCTYPE tag.

The gross structure of an APML document:

- Patent
- Identity
- Bibliography
- Description et al
- Claims

Normalizations

- GUID's always obey the Aurigin GUID convention

-->

```
<!ELEMENT Patent (Bibliography,
    Abstract,
    UnstructuredBibliography?,
    BriefSummaryOfInvention?,
    DescriptionOfDrawings?,
    DescriptionOfInvention,
    Claims) >
```

} ~ 703

```
<!ATTLIST Patent
    MajorVer ( 0 | 1 | 2 | 3 | 4 | 5 | 6
               | 7 | 8 | 9 ) #REQUIRED
    MinorVer ( 0 | 1 | 2 | 3 | 4 | 5 | 6
               | 7 | 8 | 9 ) #REQUIRED
    GUID ID #REQUIRED
```

} ~ 704

>

} ~ 704

<!-- Normalized tags

This DTD has a common set of tags that appear in many places. These "normalized tags" promise a given data normalization when they appear.

- Date's are always of the form YYYYMMDD,
- PubOrg's are only allowed to be those found in WIPO Standard 3
- Kind's obey the Aurigin Naming Convention
- Num's are always purely numeric
- Cntry's are only allowed to be ISO-specified countries

```
<!ELEMENT Date (#PCDATA)
<!ELEMENT PubOrg (#PCDATA)
<!ELEMENT Kind (#PCDATA)
<!ELEMENT Num (#PCDATA)
<!ELEMENT Cntry (#PCDATA)
```

} ~ 705

<!-- Common tags and entities
(i.e. tags that appear in more than one place but are not normalized)

TODO: What else should appear in the common text? Bold? Superscript?

```
<!ENTITY % commentext "( #PCDATA )"
<!ELEMENT P %commentext;
<!ATTLIST P id ID #REQUIRED
```

} ~ 706

<!-- Bibliography tags

Despite the fact that it is inappropriate to arrange them like this in actual documents, I've arranged the bibliographic tags into areas in here for convinence.

- Identifiers
- References to Other Documents
- Legalities (i.e. data that reinforces the assignee's right to monopoly)
- Classifications
- Misc.

They may have further decomposition.

```
<!ELEMENT Bibliography (
    Title, PubNo, AppNo,
    PatentRef*,
    FilingDate, IssueDate?, PublicationDate?, CalculatedExpirationDate?,
    Assignee*, Inventor*, Priority*, DesignatedStates,
    IPC*, USClassification*,
    PublicationLanguage, NumClaims?, NumDrawingPages?, NumFigures?,
```

} ~ 707

FIG. 7A

```

NumSpecPages?
-->

<!--
| Bibliography: Identifiers
|
| - AppNo is currently unnormalized, and with good reason. There are
-->
<!--
| This "xml:space" thing is a trick to make the XML parser preserve the
| whitespace of the tag.

-->
<!ELEMENT Title #text>
<!ATTLIST Title xml:space (preserve|default) "preserve">
<!ELEMENT PubNo (PubOrg, Kind, Num)>
<!ELEMENT AppNo (#PCDATA)>

}

<!--
| Bibliography: References to other documents
|
| The patent ref is expected to contain a GUID that obeys the same
| convention as Patent's GUID attribute
-->
<!ELEMENT PatentRef (#PCDATA)>

}

<!--
| Bibliography: Legalities
|
| Inventor should be Last Name, First Name if you can arrange it
-->
<!ELEMENT FilingDate (Date)>
<!ELEMENT IssueDate (Date)>
<!ELEMENT PublicationDate (Date)>
<!ELEMENT CalculatedExpirationDate (Date)>
<!--

| Inventor should be Last Name, First Name if you can arrange it

-->
<!ELEMENT Assignee (#PCDATA)>
<!ELEMENT Inventor (#PCDATA)>

}

<!--
| Priority (Date, AppNo, PubOrg)
| DesignatedStates (Cntry+)
|
| IPC
|
| Edition number and primary/secondary assumed by processing software if
| not supplied. Suggested meanings: edition 6 by default, first IPC li
-->
<!ELEMENT Priority (Date, AppNo, PubOrg)>
<!ELEMENT DesignatedStates (Cntry+)>

}

<!--
| Bibliography: Classifications
|
| IPC
|
| Edition number and primary/secondary assumed by processing software if
| not supplied. Suggested meanings: edition 6 by default, first IPC li
-->
<!ELEMENT IPC (Section, Class, Subclass, Group, Subgroup)>
<!ATTLIST IPC edition NMTOKEN #IMPLIED
| primary (Y|N) #IMPLIED>
<!ELEMENT Section (#PCDATA)>
<!ELEMENT Class (Num)>
<!ELEMENT Subclass (#PCDATA)>
<!ELEMENT Group (#PCDATA)>
<!ELEMENT Subgroup (#PCDATA)>
<!--

| US Classification

The "class" of US Class being used is assumed if not supplied. Sugges
meaning: Original by default.

-->
<!ELEMENT USClassification (USClass, USSubclass, USSuffix)>
<!ATTLIST USClassification
| class (Original|Xref|Unofficial|Digest) #IMPLIED>
<!ELEMENT USClass (#PCDATA)>
<!ELEMENT USSubclass (#PCDATA)>
<!ELEMENT USSuffix (#PCDATA)>

}

<!--
| Bibliography: Misc.

- xml:lang must, of course, conform to the XML standard.

```

FIG. 7B

```
>ELEMENT PublicationLanguage (#PCDATA)>
!ATTLIST PublicationLanguage xml:lang NMTOKEN #REQUIRED>
ELEMENT NumClaims      (Num)>
ELEMENT NumDrawingPages (Num)>
ELEMENT NumFigures     (Num)>
ELEMENT NumSpecPages   (Num)>
```

} ~712 (cont.)

```
-- Abstract
```

```
>ELEMENT Abstract (P*)>
!ATTLIST Abstract xml:space (preserve|default) "preserve">
```

} ~713

```
-- Unstructured Bibliography
```

Necessary for a variety of reasons, most notably:
- Prevents us from structuring all the ugly bib data in US Green Book.
- We need it if we want XML2EQV and don't have all the bib data necessary
to "render" the front page information

```
>ELEMENT UnstructuredBibliography (#PCDATA)>
!ATTLIST UnstructuredBibliography xml:space (preserve|default) "preserve"
    xml:lang NMTOKEN #REQUIRED>
```

} ~714

```
-- Brief Summary of the Invention
```

```
>ELEMENT BriefSummaryOfInvention (P*)>
!ATTLIST BriefSummaryOfInvention xml:space (preserve|default) "preserve"
    xml:lang NMTOKEN #REQUIRED>
```

} ~715

```
-- Brief Description of the Drawings
```

```
>ELEMENT DescriptionOfDrawings (P*)>
!ATTLIST DescriptionOfDrawings xml:space (preserve|default) "preserve"
    xml:lang NMTOKEN #REQUIRED>
```

} ~716

```
-- Detailed Description of the Invention
```

```
>ELEMENT DescriptionOfInvention (P*)>
!ATTLIST DescriptionOfInvention xml:space (preserve|default) "preserve"
    xml:lang NMTOKEN #REQUIRED>
```

} ~717

```
-- Claims
```

```
>ELEMENT Claims (Claim|P)*>
!ATTLIST Claims xml:space (preserve|default) "preserve"
    xml:lang NMTOKEN #REQUIRED>
ELEMENT Claim <common:context;>
!ATTLIST Claim id ID #REQUIRED>
```

} ~718

Fig. 7C

```

<?xml version="1.0"?>
<!DOCTYPE Patent SYSTEM "APML_v0.1.DTD">
<Patent MajorVer="0" MinorVer="1" GUID="BP00UUUS3653663">

  <Bibliography>
    <Title xml:space="preserve">SPHERICAL SHELL GAME APPARATUS HAVING INTERNAL CUPS AND A FREELY
MOVEABLE BALL</Title>
    <PubNo>
      <PubOrg>US</PubOrg>
      <Kind>U</Kind>
      <Num>3653663</Num>
    </PubNo>
    <AppNo>846329</AppNo>
    <PatentRef>BP00UUUS2100898</PatentRef>
    <FilingDate>
      <Date>19690731</Date>
    </FilingDate>
    <IssueDate>
      <Date>19720404</Date>
    </IssueDate>
    <CalculatedExpirationDate>
      <Date>19990404</Date>
    </CalculatedExpirationDate>

    <Assignee>Said Kinberg, by said Mayer</Assignee>
    <Inventor>Kinberg, Benjamin</Inventor>
    <Inventor>Mayer, Richard J.</Inventor>

    <DesignatedStates>
      <Cntry>US</Cntry>
    </DesignatedStates>

    <IPC>
      <Section>A</Section>
      <Class>
        <Num>63</Num>
      </Class>
      <Subclass>f</Subclass>
      <Group>906</Group>
      <Subgroup></Subgroup>
    </IPC>
    <USClassification class="Original">
      <USClass>273</USClass>
      <USSubclass>96</USSubclass>
      <USSuffix>R</USSuffix>
    </USClassification>
    <USClassification class="Xref">
      <USClass>273</USClass>
      <USSubclass>115</USSubclass>
      <USSuffix></USSuffix>
    </USClassification>
    <USClassification class="Xref">
      <USClass>273</USClass>
      <USSubclass>95</USSubclass>
      <USSuffix>R</USSuffix>
    </USClassification>
    <PublicationLanguage xml:lang="en"/>
    <NumClaims>
      <Num>8</Num>
    </NumClaims>
    <NumDrawingPages>
      <Num>1</Num>
    </NumDrawingPages>
    <NumFigures>
      <Num>2</Num>
    </NumFigures>
  </Bibliography>

  <Abstract xml:space="preserve">
<P id="P0">A game including a hollow transparent spherical shell having a loose ball  
confined therein and a plurality of consecutively numbered cups within the  
shell. The object of the game is to transfer the ball from one cup to  
another in consecutively numbered order.</P>
  </Abstract>

```

<UnstructuredBibliography xml:space="preserve" xml:lang="en">United States Patent [19]
 Kinberg et al.
 [11] Patent Number: 3,653,663
 [45] Date of Patent: Apr. 4, 1972

[54] SPHERICAL SHELL GAME APPARATUS
 HAVING INTERNAL CUPS AND A FREELY
 MOVEABLE BALL
 [75] Inventors: Benjamin Kinberg, 425 Riverside Drive, New
 York, NY, 10025; Richard J. Mayer,
 Bloomfield, NJ
 [73] Assignee:
 [21] Appl. No.: 846,329
 [22] Filed: Jul. 31, 1969
 Related U.S. Application Data
 [51] Int. Cl..... A63f 9/06
 [52] U.S. Cl. 273/96.R; 273/115; 273/95.R

FIG. 8A

(58) Field of Search 273/95, 96, 113, 115

(56) References Cited

U.S. PATENT DOCUMENTS

2,100,898 11/1937 Bennett 273/95

OTHER PUBLICATIONS

Playthings January, 1969 p. 61

Primary Examiner--Richard C. Pinkham

Assistant Examiner--Marvin Siskind

Attorney, Agent, or Firm--Charles J. Worth

(57) ABSTRACT

A game including a hollow transparent spherical shell having a loose ball confined therein and a plurality of consecutively numbered cups within the shell. The object of the game is to transfer the ball from one cup to another in consecutively numbered order.

8 Claims, 1 Drawing Sheet

</UnstructuredBibliography>

<BriefSummaryOfInvention xml:space="preserve" xml:lang="en">
<P id="P1"><?format centered?>FIELD OF THE INVENTION</P>
<P id="P2">The present invention relates to games, and more particularly to a game of skill.</P>
<P id="P3"><?format centered?>SUMMARY OF THE INVENTION</P>
<P id="P4">An object of the present invention is to provide a game which requires a high degree of skill.</P>
<P id="P5">Another object is to provide such a game which is amusing to children and adults.</P>
<P id="P6">Another object is to provide such a game which is attractive in appearance.</P>
<P id="P7">Another object is to provide such a game which is sturdy in construction.</P>
<P id="P8">A further object is to provide such a game which can be fabricated in a simple and economical manner.</P>
<P id="P9">Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.</P>
<P id="P10">In accordance with the present invention, the foregoing objects are generally accomplished by providing a game which comprises a hollow transparent spherical shell, a loose ball confined with the shell, and a plurality of spaced cups secured to the inner wall of the shell, one of the cups having a side opening for admitting the ball at the starting point.</P>

</BriefSummaryOfInvention>
<DescriptionOfDrawings xml:space="preserve" xml:lang="en">
<P id="P11"><?format centered?>BRIEF DESCRIPTION OF THE DRAWING</P>
<P id="P12">FIG. 1 is an elevational view of the shell looking horizontally at the outer end of the cup provided with the side opening.</P>
<P id="P13">FIG. 2 is a sectional view of one of the other cups taken along the line 2-2 on FIG. 1.</P>

</DescriptionOfDrawings>
<DescriptionOfInvention xml:space="preserve" xml:lang="en">
<P id="P14"><?format centered?>DESCRIPTION OF THE PREFERRED EMBODIMENT</P>
<P id="P15">Referring now to the drawing in detail, there is shown a game in accordance with the present invention which generally comprises a hollow transparent spherical shell 10, a loose ball 11 confined within the shell, and a plurality of cups secured to the inner wall of the shell, and a plurality of cups secured to the inner wall of the shell. </P>
<P id="P16">For example, eight cups 12 are provided which are identified by numerals 1 thru 8 which are arranged in consecutive order. Consecutive letters of the alphabet could be employed instead of numerals. Preferably, the numerals are on the shell 10 at the base of the cups 12 although they could be on the cups. As shown in FIG. 2, the cups are flared towards the center of the shell and are frusto-conical in shape. The cups are open at the outer end thereof and the inner wall of the shell provides a closure for these openings.</P>
<P id="P17">The shell 10 is formed of two hemi-spherical sections and four cups 12 are adhesively or otherwise secured to each shell section. Thereafter, the ball 11 is deposited in one of the shell sections and the shell sections are secured to each other.</P>
<P id="P18">The cup identified by the numeral 1, which is the starting point of the game, has a side opening 14 for admitting the ball 11 by rolling the ball from the inner wall of the shell 10 through this opening.</P>
<P id="P19">The shell 10 has indicia thereon such as V-shaped marks or arrows 15 for indicating the direction from one cup to the following numbered cup, that is, from cup 1 to cup 2, from cup 2 to cup 3, and so forth.</P>
<P id="P20">The cups 2 may be spaced evenly, but preferably are spaced unevenly to make the game more difficult to be played. For example, as shown, the distance between cups 2 and 3 is greater than the distance between cups 1 and 2.</P>
<P id="P21">The game is played by rolling the ball 11 into cup 1 and then attempting to transfer the ball to cup 2 by tilting the shell in the proper angle and at the proper momentum. The player then attempts to transfer the ball from cup 2 to cup 3 and so on. If a cup is missed, the ball must be returned to cup 1 and the game must be restarted. This makes the game frustrating and requires a high degree of skill to play the same from cup 1 to cup 8 without a miss. When the game is played by more than one person and the first person misses, then the next person has a chance. This is continued until one person completes the game without a miss.</P>
<P id="P22"><?format centered?>SUMMATION</P>
<P id="P23">From the foregoing description, it will be seen that the present invention provides an interesting, fascinating and frustrating game which can be played by one or more persons.</P>

</DescriptionOfInvention>
<Claims xml:space="preserve" xml:lang="en">
<P id="P24">We claim:</P>
<Claim id = "C1">A game comprising a hollow transparent spherical shell, a loose ball confined within said shell, and a plurality of spaced apart cups having their bases secured to the inner wall of said shell so that the ball may

FIG. 8B

be consecutively transferred from cup to cup by gravity, each transfer being effected by imparting a tilting motion to said shell, one of said cups having an opening in its side for admitting said ball.</Claim>
 <Claim id = "C2">A game according to claim 1, wherein said cups are mounted directly to the inner wall of said shell.</Claim>
 <Claim id = "C3">A game according to claim 2, wherein said cups are flared outwardly towards the center of said shell.</Claim>
 <Claim id = "C4">A game according to claim 2, wherein said cuts are spaced unevenly.</Claim>
 <Claim id = "C5">A game according to claim 2, wherein said cups are identified by numerals arranged adjacently in consecutive order.</Claim>
 <Claim id = "C6">A game according to claim 5, wherein said numerals are on said shell at the base end of said cups.</Claim>
 <Claim id = "C7">A game according to claim 5, wherein said shell has indicia for indicating the direction from one cup to the following numbered cup.</Claim>
 <Claim id = "C8">A game according to claim 5, wherein the cup identified by the lowest numeral is said cup having said side opening.</Claim>
 </Claims>

</Patent>

FIG. 8C

P R E P A R E D : C O M P U T E R

```

<?xml version="1.0"?>
<!DOCTYPE Patent SYSTEM "APML_v0.1.DTD">
<Patent MajorVer="0" MinorVer="1" GUID="BP00A2EP799999">

  <Bibliography>
    <Title xml:space="preserve">A rotor for turbomolecular pump</Title>
    <PubNo>
      <PubOrg>EP</PubOrg>
      <Kind>A2</Kind>
      <Num>799999</Num>
    </PubNo>
    <AppNo>96202468.3</AppNo>

    <FilingDate>
      <Date>19960905</Date>
    </FilingDate>
    <PublicationDate>
      <Date>19971008</Date>
    </PublicationDate>
    <CalculatedExpirationDate>
      <Date>20160905</Date>
    </CalculatedExpirationDate>

    <Inventor>Cerruti, Roberto</Inventor>

    <Priority>
      <Date>19960405</Date>
      <AppNo>T0960265</AppNo>
      <PubOrg>IT</PubOrg>
    </Priority>
    <DesignatedStates>
      <Cntry>DE</Cntry>
      <Cntry>FR</Cntry>
      <Cntry>GB</Cntry>
    </DesignatedStates>

    <IPC edition = "6" primary = "Y">
      <Section>F</Section>
      <Class>
        <Num>4</Num>
      </Class>
      <Subclass>D</Subclass>
      <Group>29</Group>
      <Subgroup>02</Subgroup>
    </IPC>
    <IPC edition = "6">
      <Section>F</Section>
      <Class>
        <Num>4</Num>
      </Class>
      <Subclass>D</Subclass>
      <Group>19</Group>
      <Subgroup>04</Subgroup>
    </IPC>
  </Bibliography>

  <Abstract xml:space="preserve">
<P id="P0">The present invention relates to a rotor (1) of a vacuum pump comprising a rotatable shaft (5) and a plurality of spaced apart parallel rotor disks (2, 3) secured to said rotatable shaft (5), such rotor being provided with a corrosion-resistant protective coating formed by a layer of polymeric material.</P>
  </Abstract>
  <UnstructuredBibliography xml:space="preserve" xml:lang='en'>[19] Publishing Organization
  EP

  {11} Publication Number
  799999

  {12} Kind
  A2

  {21} Application Number
  96 96202468

  {51} Intl. Cl.6
  F04D 29/02 A
  F04D 19/04 B

  {22} Date of Filing
  05.09.96

  {30} Priority
  05.04.96 IT 96TO 265

  {43} Date of publication of application
  08.10.97

  {84} Designated Contracting States
  DE FR GB

  {71} Applicant(s)
  VARIAN S.P.A.

  {72} Inventor(s)
  CERRUTI, ROBERTO

```

FIG. 9A

[54] Title
A ROTOR FOR TURBOMOLECULAR PUMP

[56] Abstract

The present invention relates to a rotor (1) of a vacuum pump comprising a rotatable shaft (5) and a plurality of spaced apart parallel rotor disks (2, 3) secured to said rotatable shaft (5), such rotor being provided with a corrosion-resistant protective coating formed by a layer of polymeric material.

</UnstructuredBibliography>

<DescriptionOfInvention xml:space='preserve' xml:lang='en'>
<P id="P1">The present invention is concerned with the rotor of a vacuum pump.</P>
<P id="P2">More particularly the invention refers to a rotor for those vacuum pumps known as turbomolecular pumps that are to be employed in the presence of particularly corrosive gases.</P>
<P id="P3">As it is well known, a turbomolecular pump can schematically be regarded as comprising an outer casing in which a number of gas pumping stages are housed.</P>
<P id="P4">The gas pumping stages are generally obtained through an assembly of stator rings cooperating with rotor disks that are secured to a rotatable shaft driven by the pump motor.</P>
<P id="P5">The pumping stages comprise a space for allowing the gas flow, named pumping channel, where the surfaces of the rotor disk and the facing stator are relatively spaced away, and tight zones where the surfaces of the rotor disk and the facing stator are very near to each other.</P>
<P id="P6">The rotor disks can be either flat (plane) disks or disks that are provided with closely spaced apart inclined blades.</P>
<P id="P7">A vacuum pump of the turbomolecular type comprises both flat disks and bladed disks, and is capable to achieve low pressure levels in the order of $10^{-1} \text{--Esc}(<\!\!SP\!\!>)\text{--8}\text{--Esc}(<\!\!SP\!\!>)\text{-- Pa.}$ </P>
<P id="P8">In order to reach the above vacuum levels with the presently used pumps, the rotor must rotate at a speed near to 100,000 rpm.</P>
<P id="P9">It has been known to use turbomolecular pumps in the field of integrated circuits (ICs) manufacturing.</P>
<P id="P10">In the manufacturing cycle of integrated circuits there are used gas mixtures such as HCl, HBr, Cl<!--Esc(<SB>)-->2<!--Esc(<SB>)-->, F1<!--Esc(<SB>)-->2<!--Esc(<SB>)-->, NH<!--Esc(<SB>)-->2<!--Esc(<SB>)-->, etc.
that are well-known highly corrosive gases.</P>
<P id="P11">One of the main problems when using turbomolecular pumps in the ICs manufacturing industry is due to the accumulation of a not negligible amount of gas because of the diffusion through the pumping stages.</P>
<P id="P12">As a consequence, the surfaces of the internal components of the pump, particularly the rotor surface, come into direct contact with such gas mixtures and are subjected to the corrosive action thereof.</P>
<P id="P13">There are also known rotors for turbomolecular pumps provided with a metal or ceramic coating as a protection against the action of such corrosive gases.</P>
<P id="P14">The known protective metal coating is generally applied to the rotor by means of nickel-plating, zinc plating or anodizing processes.</P>
<P id="P15">As already mentioned the rotor of a turbomolecular pump is rotated at very high speeds, usually not lower than 25,000 rpm.</P>
<P id="P16">Due to the very high rotation speed of the rotor and to the extremely reduced gap between the pump rotor and the stator in the pumping stages, a mass distribution in the rotor body that is not homogeneous with respect to its axis of rotation can cause a force unbalance such as to jeopardize the working of the pump up to a failure of its components.</P>
<P id="P17">Thus an essential requirement in manufacturing a turbomolecular pump, particularly to be used with corrosive gases, is to achieve a substantially perfect rotational balance of the rotor body.</P>
<P id="P18">The known metal or ceramic coatings used until now have the drawback of being unsuitable for application onto objects that are to remain perfectly balanced while maintaining very smooth surfaces such as the rotor of a turbomolecular pump. Namely, due to the complex geometrical shape and the small size of the areas in which the blades are attached to the rotor the thickness of the metal or ceramic coating can result as not adequate and easy to be corroded away.</P>
<P id="P19">In order to prevent this from happening it is often increased the amount of the protective material deposited onto the rotor body, but this countermeasure can lead to a not uniform thickness of the protection coating of the flat surfaces of the rotor disks that sometimes results in being too thick.</P>
<P id="P20">Consequently an additional finishing step becomes necessary in order to level the surfaces on which the deposited material has a not uniform thickness.</P>
<P id="P21">The object of the present invention is to overcome the above mentioned drawbacks by realizing a rotor for a vacuum pump that is corrosion resistant while at the same time has an easy and inexpensive construction.</P>
<P id="P22">The above objects of the present invention are accomplished by a rotor as claimed in claim 1.</P>
<P id="P23">Additional objects of the invention are achieved by a rotor as claimed in the dependent claims.</P>
<P id="P24">Further characteristics and advantages of the present invention will become evident from the description of some preferred but not exclusive embodiments thereof that are illustrated - only by way of example - in the attached drawings, in which:</P>
<!--Esc(<SL COMPACT=COMPACT>Figure 1 is a perspective partial view of a rotor of a turbomolecular pump; andFigure 2 is an enlarged cross-section view of a detail

FIG 9B

of the rotor according to the invention.

</SL>}-->

<P id="P25">With reference to Figure 1, a rotor 1 of a turbomolecular pump comprises a plurality of flat rotor disks 2 and a plurality of rotor disks 3 provided with projecting inclined blades 4.</P>

<P id="P26">The rotors 2 and 3 are secured to a rotatable shaft 5 driven into rotation by a pump motor (not shown).</P>

<P id="P27">Referring also to the enlarged-cross section view of Fig. 2, the surface of the rotor according to the invention is covered with a polymeric protective layer or film 6 that is uniformly distributed over the whole rotor surface. The polymer is preferably a straight-chain organic compound having a molecular weight higher than 10,000 and is electrically insulating.</P>

<P id="P28">In the embodiment shown in Fig. 2, the thickness of the protective layer 6 is shown much larger than the real size for a better appreciation.</P>

<P id="P29">The coating layer 6 is preferably obtained by polymerisation of a reactive monomer over the rotor surface, under vacuum conditions.</P>

<P id="P30">In a preferred embodiment of the invention the thickness of the protective layer 6 is comprised between 12 and 20 µm, with a tolerance of about ±2 µm, so that the thickness ranges between about 10 and 22 µm.</P>

<P id="P31">A preferred polymeric material for the layer 6 is a so-called poly-(p-xylylene), that is a polymer of (p-xylylene).

In this case the coating process comprises a vapourisation of a dimer of (p-xylylene) under vacuum, preferably under a pressure of 100 Pa at a temperature of about 150 °C.</P>

<P id="P32">Then the vapour is passed through a pyrolysis zone at a temperature of about 680°C and a pressure of 50 Pa thus forming the monomer of (p-xylylene).</P>

<P id="P33">The monomer is then admitted into a coating chamber under a lower pressure, containing the rotor body that is kept rotating for a better distribution of the coating. The rotor is substantially at room temperature, i.e. is "cold" in respect of the monomer and this temperature difference causes a condensation with substantially simultaneous polymerisation of the reactive monomer onto the rotor surface.</P>

<P id="P34">A suitable dimer of (p-xylylene) is available from Ausimont under the trade name GALAXYL, or from Union Carbide under the trade name PARYLENE.</P>

<P id="P35">From laboratory comparative tests carried out by the applicant it has been discovered that the resistance to corrosion of a rotor treated according to the invention is much higher than that of rotors protected by conventional ceramic or metal layers.</P>

<P id="P36">It is deemed that the superior resistance to corrosion of the rotor according to the invention derives from both the corrosion resistant properties of the polymer coating, together with the high uniformity of the deposited layer which extends also over sharp edges or recessed areas, particularly at the junction of the rotor blades.</P>

<P id="P37">It is evident that the polymeric coating according to the invention can be also applied to other (stationary) components of a turbomolecular pump that are exposed to corrosion, such as the stator rings, the spacing rings located between the stators, the pump body and its inner surface.</P>

</DescriptionOfInvention>

<Claims xml:space="preserve" xml:lang="en">

<Claim id = "C1">A rotor (1) for a vacuum pump (1) comprising a rotatable shaft (5) and a plurality of rotor disks (2, 3), parallel and spaced apart from each other, and secured to said rotatable shaft (5), characterized in that the whole surface of said rotor is covered by a corrosion-resistant protective coating formed by a polymeric material layer having a uniform thickness comprised between 10 and 22 µm.</Claim>

<Claim id = "C2">A rotor as claimed in claim 1, characterized in that said protective coating is formed by a straight-chain organic compound, electrically insulating, and having a molecular weight higher than 10,000.</Claim>

<Claim id = "C3">A rotor as claimed in claim 1 or 2, characterized in that said protective coating is formed through a polymerisation under vacuum of a reactive monomer onto the rotor surface.</Claim>

<Claim id = "C4">A rotor as claimed in any preceding claim, characterized in that said protective coating is resistant to the corrosive action of gases used in the manufacturing of integrated circuits, particularly those of the group formed by HCl, HBr, Cl<!--Esc(<SB>)-->2<!--Esc(</SB>)-->, F<!--Esc(<SB>)-->2<!--Esc(</SB>)-->, NH<!--Esc(<SB>)-->3<!--Esc(</SB>)--> and mixtures thereof.</Claim>

<Claim id = "C5">A rotor as claimed in any preceding claim, characterized in that said polymeric material is poly-(p-xylylene).</Claim>

<Claim id = "C6">A turbomolecular pump comprising a rotor (1) as claimed in claims 1 to 5.</Claim>

<Claim id = "C7">A turbomolecular pump as claimed in claim 6, characterized in that at least one other stationary component of the said pump is provided with a corrosion resistant protective layer comprising a polymer.</Claim>

<Claim id = "C8">A turbomolecular pump as claimed in claim 6, characterized in that said polymer is poly-(p-xylylene).</Claim>

</Claims>

</Patent>

FIG. 9C

From

US Redbook	Greenbook	EPO/PCT EPD/DAB	ERS/SAB
<B100>	n/a		
<B190>	hardcoded		<B190>
<B130>	WKU, PBL		<B130>
<B110>	WKU		<B110>
<SDOBI>	PATN et al		<SDOBI>
<B140>	ISD		<B140>
<B210>, <B211US>	SRC, APN, APT		<B210>
<B220>	APD		<B220>
hardcoded	hardcoded		<SDOBI>, <B260>
n/a	n/a		<B004EP>
<B221US>, <B222US>	APT, PBL, TRM		<B010EP>, <B078EP>
<B473>, <B473US>	n/a		<B235>-<B246>
<B474>, <B474US>	n/a		
n/a	n/a		
(hardcoded?)	(hardcoded?)		<B001EP>, <B840>
<B300>	PRIR		
<B310>	APD		
<B320>	APN		
<B330>	CNT		
<B510>, <B516>	EDF		
<B511>, <B512>	ICL		
<B520>	CLAS, XCL, UCL, DCL		
<B521>, <B522>	OCL		
<B521>, <B522>	OCL		
<B521>, <B522>-	OCL		
<B540>	TTL		
n/a	n/a		
n/a	UREF, FREF		
<B561>	PNO		
<B561>	hardcoded/CNT		
<B561>	PNO		
<B561>	PNO		
<B561>	ISD		
<B561>	NAM		
<B561>	OCL, XCL, UREF		
<B561>			
<B562>	PARN		
<B600>'s	OREF		
n/a	REIS et. al.		
n/a	RLAP et. al.		
n/a	n/a		

1002

FIG. 10A

002000000000

<B578US>	<i>NCL</i>
<B595>	<i>NDR</i>
<B595US>	
<B596>	<i>NFG</i>
	<i>NPS</i>
n/a	<i>INVT</i>

<B721US>	<i>NAM</i>
<B721US>	<i>STR</i>
<B721US>	<i>STR</i>
<B721US>	<i>STR</i>
<B721US>	<i>CTY</i>
<B721US>	<i>STA</i>
<B721US>	<i>CNT</i>
<B721US>	<i>ZIP</i>
<B721US>	
<B721US>	
<B721US>	
<B721US>	

R47

<B721US>	
<B721US>	
<B721US>	
<B721US>	<i>ITX</i>
<B732US>	<i>ASSG, COD</i>

<B731>	<i>NAM</i>
<B731>	<i>CTY</i>
<B731>	<i>STA</i>
<B731>	<i>CNT</i>
<B731>	<i>ZIP</i>

<B731>	<i>ITX</i>
n/a	<i>EXP</i>

<B746>	
<B746>	
n/a	<i>EXA</i>

<B747>	
<B747>	

<B748US>	<i>ART</i>
n/a	<i>PCTA</i>
<B871>	<i>PCP</i>
<B871>	<i>PCD</i>
<B861>	<i>PCN</i>
<B861>	<i>PD3</i>
n/a	<i>n/a</i>
<B863>	<i>PD1</i>
<B864>	<i>PD2</i>

<B003EP>

FIG. 10B

<SDOAB>	ABST	
<SDODE>	n/a	
<RELAPP>	PARN	
<GOVINT>	GOVT	
<BRFSUM>	BSUM	
<DRWDESC>	DRWD	
<DETDESC>	DETD	
<B577>, <CLM>	CLMS, DCLM STM, ECL, NUM, " "	
<B580>	n/a	
<B582>	FSC, FSS	
<B583>		
<B581>		
<SDODR>		
<SDOCR>		
n/a	n/a Appendix A,##SPCn##	
TIFF	n/a	
Mathematica,MathML,TIFF	##EQUn##	
ChemDraw, MOL, TIFF	##STRn##	
CALS, TABLEPAK	##TBLn##	
Appendix G	Appendix C	
WIPO St 25		
Appendix G, ISO's	Appendix C	
Appendix H		
Appendix H		<BCHG>, etc
Appendix H		

FIG. 10C

10VZ

IPD

Header

Header 6-9,010

Header,020,021

Header,sort1,030

n/a

Header,060

40,900

50

132

151

081, 082

n/a

100, 901?

90

80

70

071-not exactly

130,132,954?,994?

n/a

n/a

31,302?

303?,306?

310,311?,312?

n/a

FIG. 10D

140
110, 973?
111

113
113
113
113
113
112

n/a

n/a

n/a

n/a

FIG. 10E

FIG. 10F

Intermediate XML		To	DB Schema
<Patdoc>		Type	
<Identity>		naming convention	DOCUMENT guid et al
<PubOrg>		WIPO_S13	IP_DOC pub_org
<Kind>		WIPO_S16	IP_DOC ip_doc_kind
<Num>		int	IP_DOC doc_number
<Bibliography>		n/a	
<PubDate>		date	IP_DOCUMENT et al
<AppNo>		varchar	IP_DOC pub_date
<FilingDate>		date	PTO_PAT AppNo?
<PublicationLanguage>		ISO standard ?	IP_DOC filing_date
<LegalStatus>		n/a	
???		???	
???		???	
???		???	
<DesignatedState> (req)		char(2)	EPO_DS, PCT_DS
<Priority>		n/a	DOC_PRIORITY, Priority
<AppNo>		varchar	DOC_PRIOR app_no
<Date>		date	DOC_PRIOR date
<PubOrg>		WIPO_S13	DOC_PRIOR pub_org
<IPC>		WIPO_S1 (forget)	IPC
<Section>		char(1)	IPC section
<Class>		int	IPC class
<Subclass>		char(0)	IPC subclass
<Group>		char(3)	IPC classGroup
<Subgroup>		char(7)	IPC subgroup
<USClass>		n/a	PATENT_CLASS_XREF
<Class>		char(0)	CLASSXREF patent_class
<Subclass>		char(3)	CLASSXREF subclass
<Suffix>		char(3)	CLASSXREF suffix
<Title>		varchar	IP_DOC title
<Citations>		n/a	IP_IP_XREF
<PatDocRef>		n/a	IP_IP_XREF
<Normalized>		naming convention	IP_IP_XREF referenced
<PubOrg>		WIPO_S13	
<Kind>		WIPO_S16	
<Num>		int	
<IssueDate>		date	
<SurName> ?		varchar	
<USClass>		see above	
<IPG> ?		see above	
<TextExplanation>		text	
<OtherCitation>		varchar	
<RelatedDocs>		n/a	RelatedApp
???		n/a	
???		n/a	
???		n/a	

FIG. 10f

<NumClaims>?	int	PTO_PATENT numClaims
<NumDrawingPages>?	int	PTO numDrawingPages
<NumColorDrawingPages>?	int	
<NumDrawingFids>?	int	
<NumSpecPages>?	int	
<Inventor>	n/a	
<NPADOC>	varchar	PTO numFigures
<Title>?	varchar	PTO numSpecs
<GivenName>?	varchar	DOC_INVENTOR
<Surname>?	varchar	
<Suffix>?	varchar	
<MlAddress>?	varchar	
<POBox>?	varchar	
<Street>?	varchar	
<City>?	varchar	
<State>?	varchar	
<Country>?	Apdx E Redbook	
<PostalCode>?	WIPO SI 3	
<ElectronicAddress>?	varchar	
<Telephone>?	varchar	
<Fax>?	varchar	
<BranchOfService>?	varchar	
<Rule47/1>?	varchar	
<CityOfResidence>?	n/a	
<StateOfResidence>?	varchar	
<CountryOfResidence>?	Apdx E Redbook	
<Description>?	WIPO SI 3	
<Assignee>?	varchar	
<OrgName>?	n/a	DOC_ASSIGNEE
<GivenName>?	varchar	DOC_ASSIGNEE name
<Surname>?	varchar	DOC_ASSIGNEE name
<Suffix>?	varchar	DOC_ASSIGNEE name
<City>?	varchar	DOC_ASSIGNEE name
<State>?	Apdx E Redbook	
<Country>?	WIPO SI 3	
<PostalCode>?	varchar	
<Description>?	varchar	
<PrimaryExaminer>?	n/a	
<GivenName>?	varchar	PTO PrimaryEx1Name
<Surname>?	varchar	PTO PrimaryEx2Name
<SecondaryExaminer>?	n/a	
<GivenName>?	varchar	PTO AsstEx1Name
<Surname>?	varchar	PTO AsstEx2Name
<AdditionalExaminers>?	varchar	PTO ArtUnit
<PCTTransfer>?	n/a	PatCoopTreaty
<PubNo>?	name/ing convention	PCT WIPONo.
<PubDate>?	date	PCT PubDate
<AppNo>?	varchar	PCT PCTNo.
<FileDate>?	date	PCT FilingDate
<EuroPCT>?	n/a	
<IntlDomesticFilingRequirements>?	date	Date371
<PriorArtEffectiveDate>?	date	Date102e

FIG. 10H

<Abstract>?		text	
<Description>?		text	
<RelatedApplication>?		text	
<GovernmentInterest>?		text	
<BriefSummary>?		text	
<DrawingDescription>?		text	
<DetailedDescription>?		text	
<Claims>?		n/a	
<Claim>?		text	
<SearchReport>?		n/a	
<FieldOfSearch>?		n/a	
<USClass>?		see above	
<USClassMisc>?		varchar	
<IPC>?		see above	
<Drawings>?			
<OCRBib>?			
TextTags		n/a	
Formatting		2	
Image		TIFF?	
MathML		MathML	
ChemML		ChemML	
Tables		Table?	
Entities		Entities	
NucleotideSequences	0	?	
CharacterSets	0	?	
Lists	0	?	
Changes	0	?	
Footnotes	0	?	

FIG. VI

ପ୍ରକାଶନ କମିଶନ ଓ ପ୍ରତିଷ୍ଠାନ ପରିଷଦ

10A	10D	10G
10B	10E	10H
10C	10F	10I

FIG. 10J

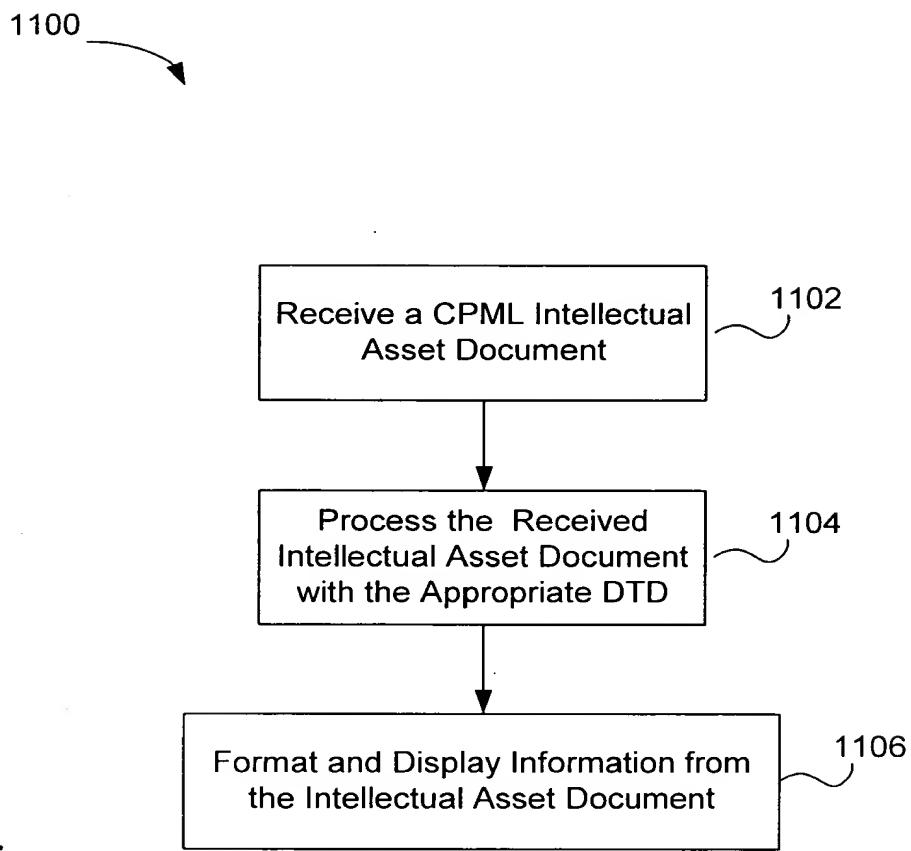
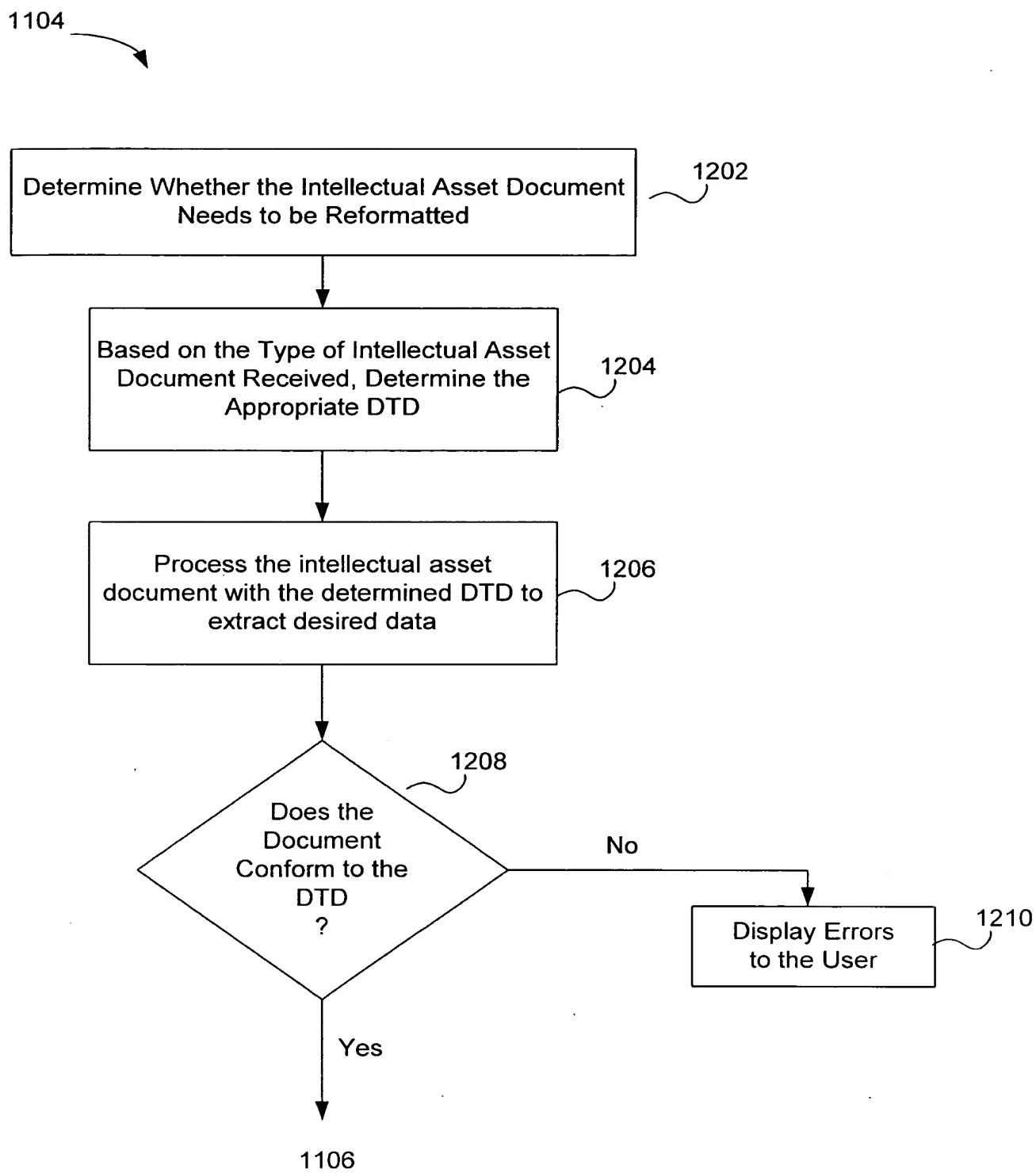


FIG. 11

**FIG. 12**

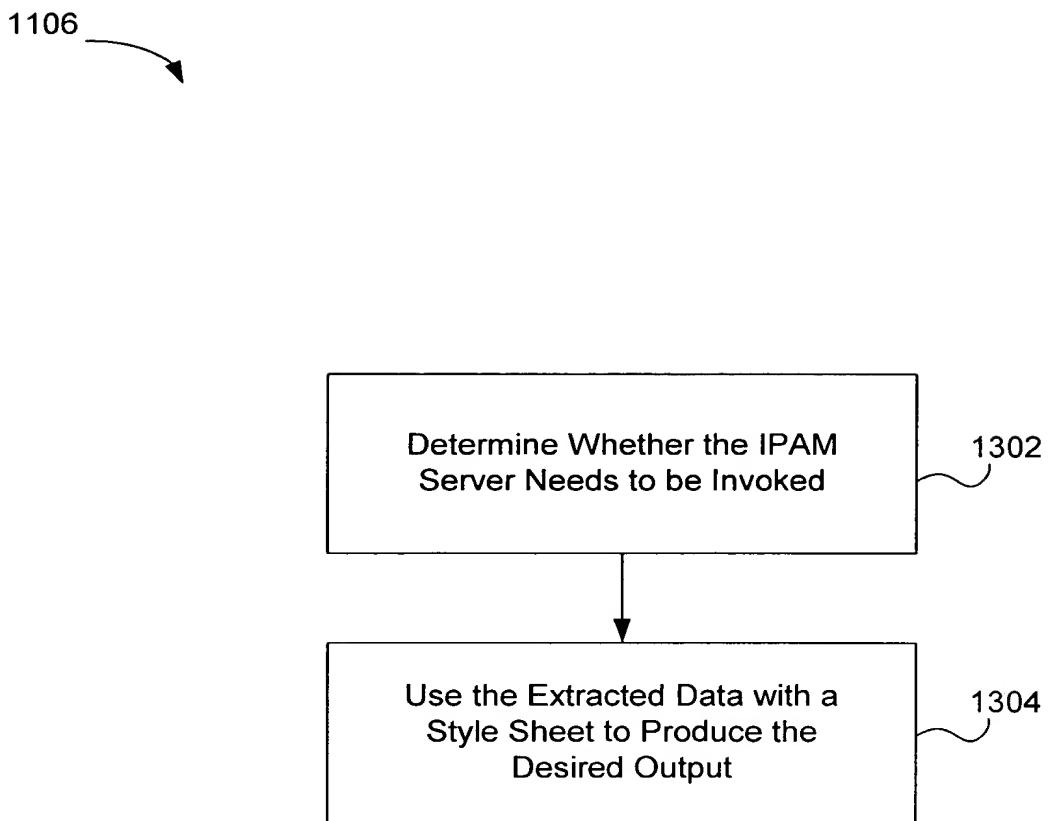
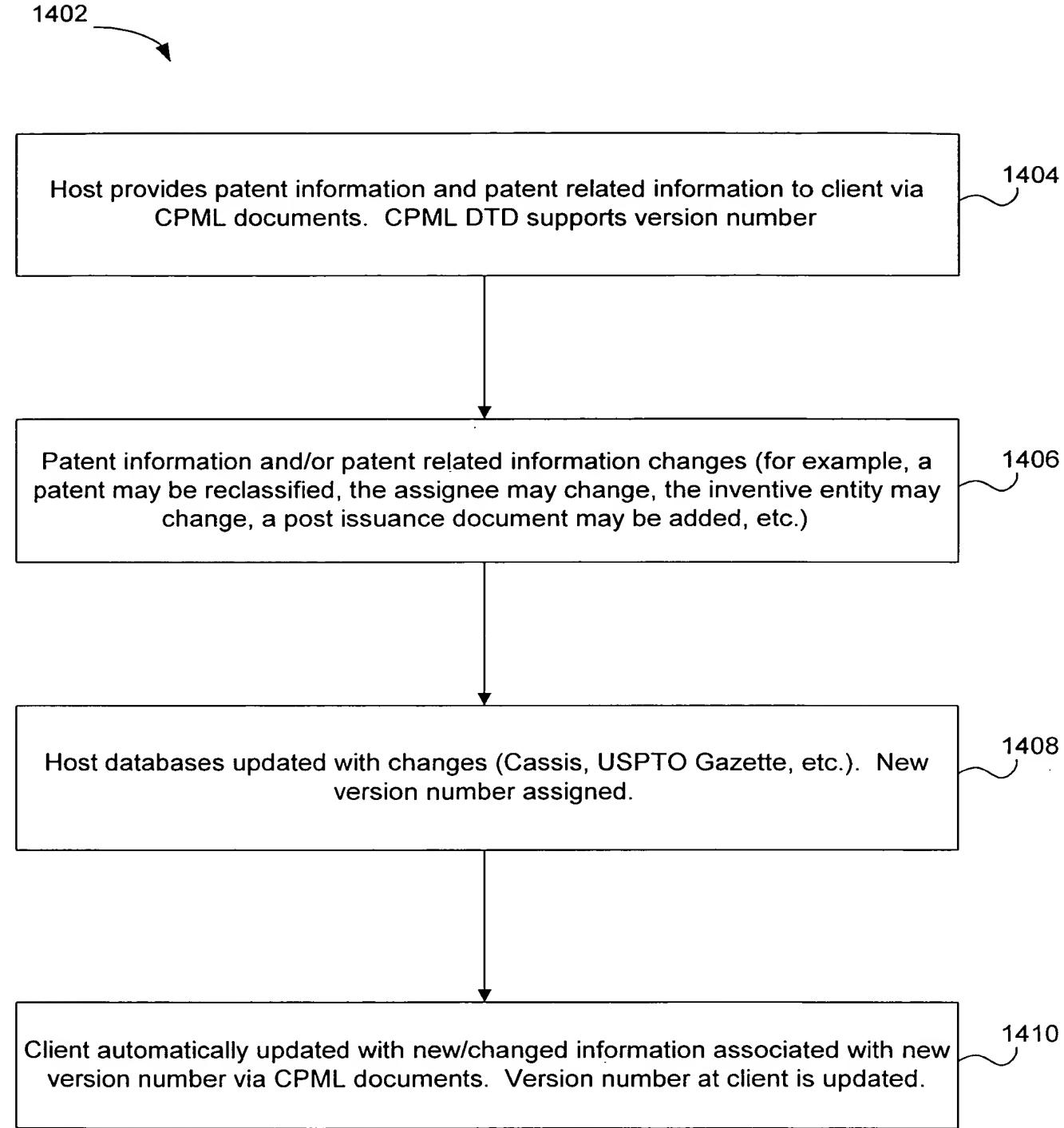


FIG. 13

**FIG. 14**

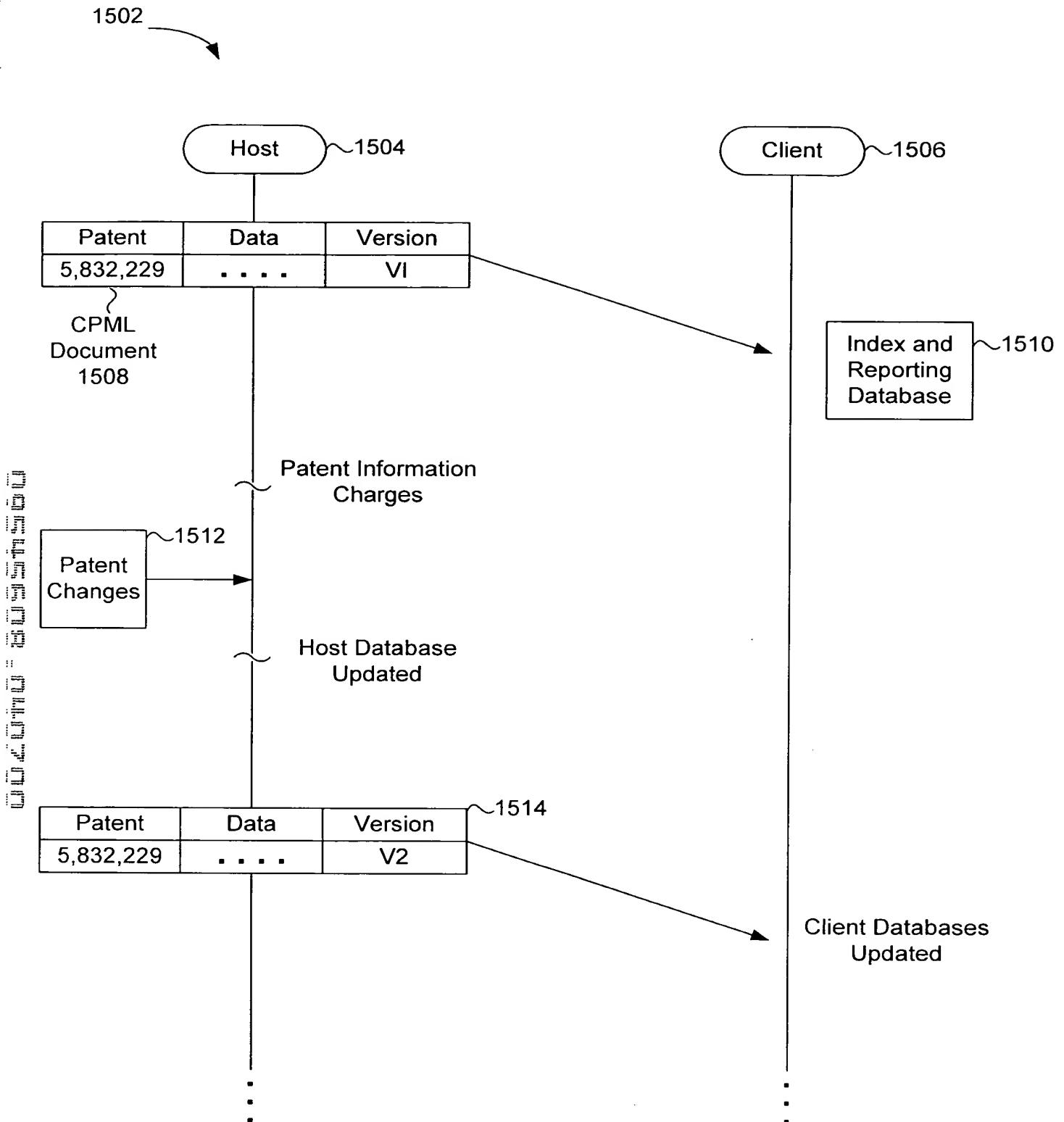


FIG. 15

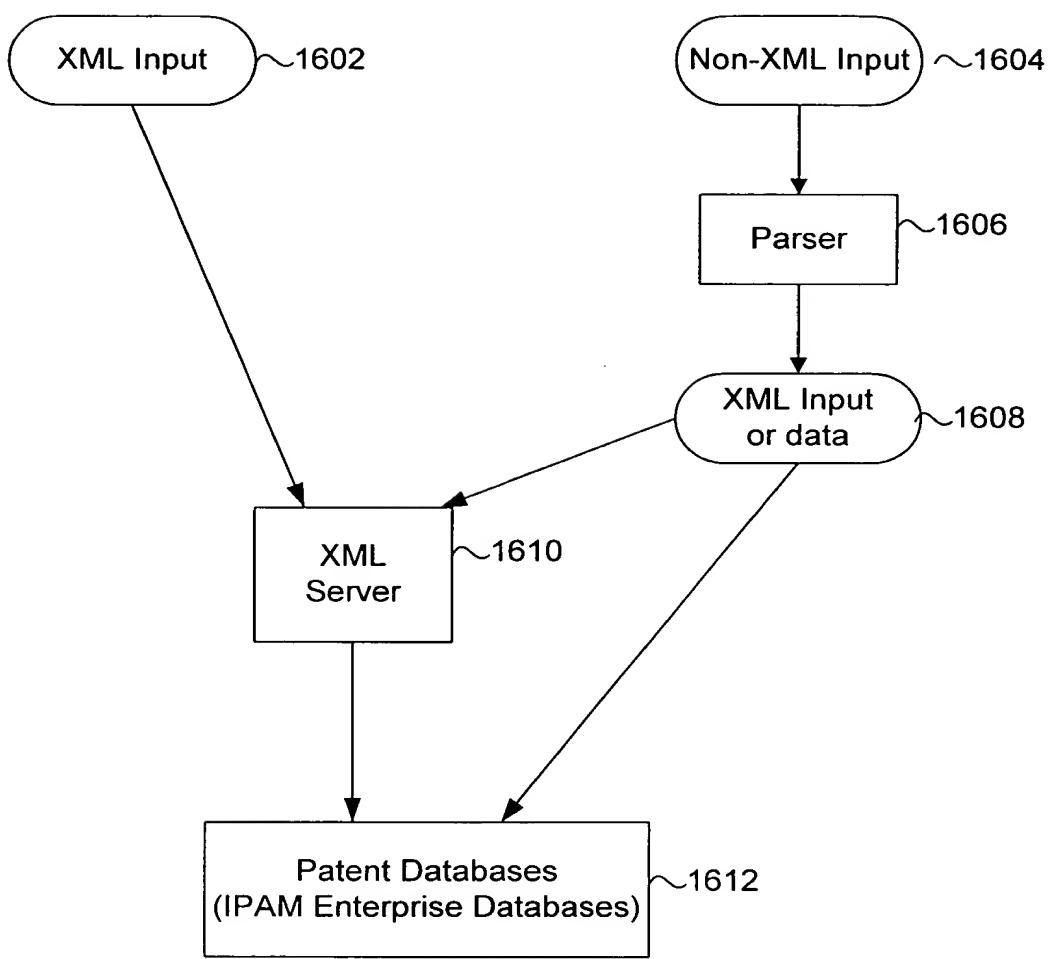


FIG. 16

<?xml version ="1.0"?>

<!-- Version 1.0a of the IPAM Electronic Document Order and Download Protocol -->

<!-- Expected Usage: -->

<!-- IPAM sends EODOrderReq1.0a, Aurigin responds with EODOrderAck1.0a -->

<!-- IPAM sends (0,n) EODQueryReq1.0a, Aurigin responds EODQueryAck1.0a -->

<!-- IPAM sends EODDownloadReq1.0a, Aurigin responds with EODDownloadAck1.0a -->

<!-- if there is anything to download, Ack contains list of ShipmentIDs -->

<!-- IPAM sends EODShipmentReq1.0a, Aurigin responds with EODShipmentAck1.0a -->

<!-- Shipment Ack contains URLs of all of the parts that make up a shipment -->

<!-- IPAM downloads all of these parts and installs them. -->

<!-- When download is successful, IPAM sends EODShipmentDone1.0a. -->

<!-- No reply is necessary from Aurigin..... -->

<!-- IPAM Electronic Document Order REQUEST -->

<!-- Issued by IPAM Server at customer site to Aurigin -->

<!ELEMENT EODOrderReq1.0a (ServerID, (Doc)+, UserInfo) >

<!ELEMENT ServerID (#PCDATA) >

<!ELEMENT Doc (#PCDATA) >

<!ELEMENT UserInfo (Email, DeptID, UserID) >

<!ELEMENT Email (#PCDATA) >

<!ELEMENT DeptID (#PCDATA) >

<!ELEMENT UserID (#PCDATA) >

<!-- IPAM Electronic Document Order ACKNOWLEDGEMENT -->

<!-- Issued by Aurigin in response to request -->

<!ELEMENT EODOrderAck1.0a (Valid | EODOrderError) >

<!-- Valid can send a message back that can go to the GUI -->

<!ELEMENT Valid (#PCDATA) >

<!ELEMENT EODOrderError (ParseError | NoProto | UnkProto | InvalidServer) >

<!-- ParseError contains the XML parse error. -->

<!ELEMENT ParseError (ErrorCode, URL, Reason, srcText, Line, LinePos, FilePos) >

<!ELEMENT ErrorCode (#PCDATA) >

FIG. 17 A

```

<!ELEMENT URL          (#PCDATA)>
<!ELEMENT Reason        (#PCDATA)>
<!ELEMENT srcText       (#PCDATA)>
<!ELEMENT Line          (#PCDATA)>
<!ELEMENT LinePos      (#PCDATA)>
<!ELEMENT FilePos      (#PCDATA)>

<!-- NoProto = No Doctype -->
<!ELEMENT NoProto      EMPTY >

<!-- UnkProto = Root node is not EODOrderReq1.0a -->
<!ELEMENT UnkProto     EMPTY >

<!-- InvalidServer: not sure if ServerID will be validated -->
<!ELEMENT InvalidServer EMPTY >

<!-- IPAM Electronic Document Query REQUEST -->
<!-- Issued by IPAM Server at customer site to Aurigin -->

<!ELEMENT EODQueryReq1.0a ( ServerID, ( Doc )+, DocFormat )>
<!ELEMENT DocFormat    (#PCDATA)>

<!-- IPAM Electronic Document Query ACKNOWLEDGEMENT -->
<!-- Issued by Aurigin in response to request -->

<!ELEMENT EODQueryAck1.0a (( DocStatus )+ | EODQueryError )>
<!ELEMENT DocStatus     ( Doc, Status, Link )>
<!ELEMENT Status        (#PCDATA)>
<!ELEMENT Link          (#PCDATA)>
<!ELEMENT EODQueryError ( ParseError | InvalidServer | InvalidFormat )>
<!ELEMENT InvalidFormat EMPTY >

<!-- IPAM Download REQUEST -->
<!-- Issued by IPAM Server at customer site to Aurigin -->

<!ELEMENT EODDownloadReq1.0a ( ServerID )>

<!-- IPAM Electronic Document Order ACKNOWLEDGEMENT -->
<!-- Issued by Aurigin in response to request -->

<!ELEMENT EODDownloadAck1.0a (( ShipInfo )* | EODDownloadError )>

```

FIG. 17 B

```
<!ELEMENT ShipInfo ( ShipID, ShipType )>
<!ELEMENT ShipID (#PCDATA )>
<!ELEMENT ShipType (SubscriptionShip|OrderShip|CancelledShip)
)>
<!ELEMENT SubscriptionShip EMPTY >
<!ELEMENT OrderShip EMPTY >
<!ELEMENT EODDownloadError ( ParseError | InvalidServer )>
```

```
<!-- IPAM Shipment REQUEST -->
<!-- Issued by IPAM Server at customer site to Aurigin -->

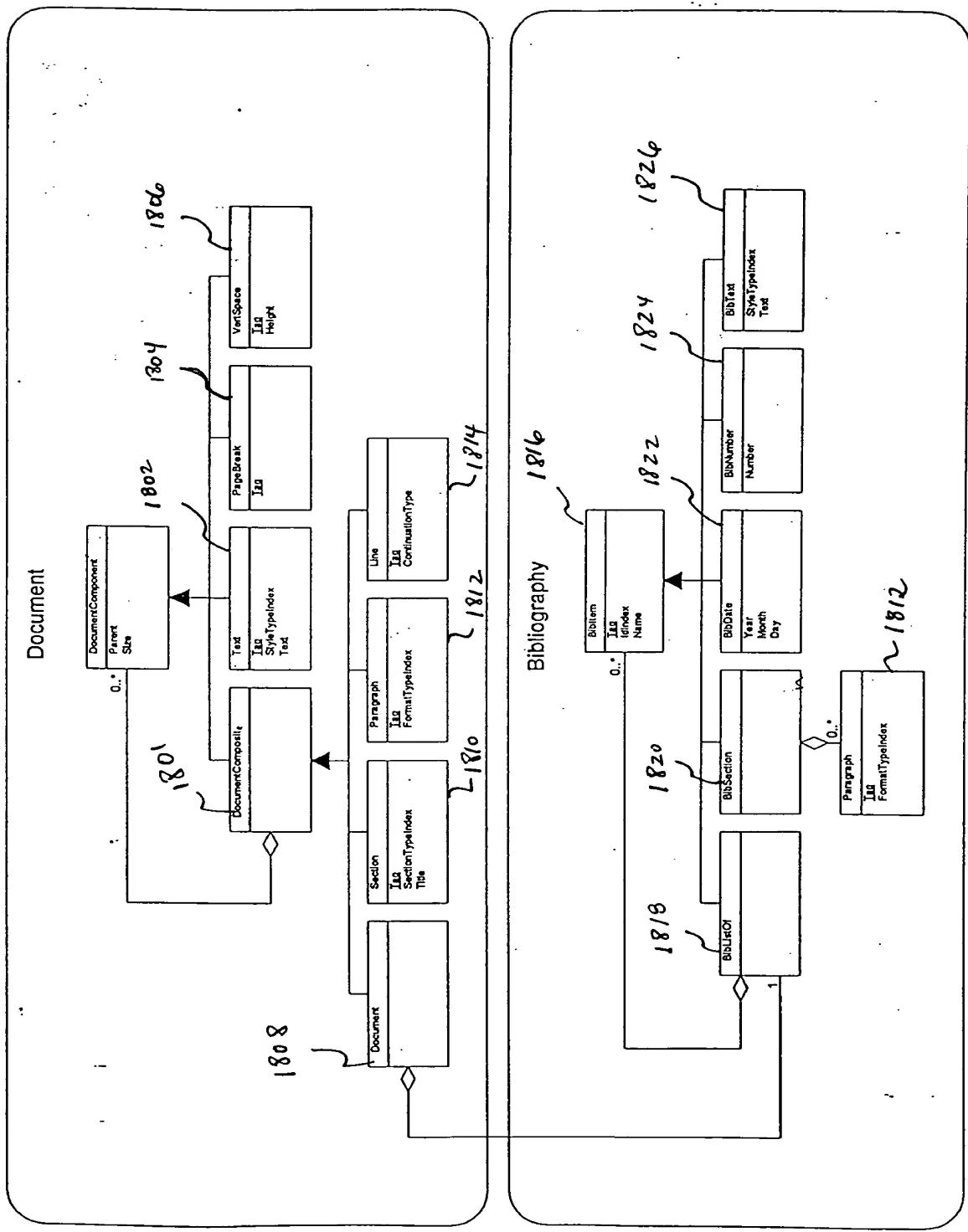
<!ELEMENT EODShipmentReq1.0a      ( ServerID, ShipID )>
```

<!-- IPAM Shipment ACKNOWLEDGEMENT -->
<!-- Issued by Aurigin in response to request -->

```
<!ELEMENT EODShipmentAck1.0a (( ChunkURL )+ | EODShipmentError )>
<!ELEMENT ChunkURL (#PCDATA )>
<!ELEMENT EODShipmentError ( ParseError | InvalidServer | InvalidShipID )>
<!ELEMENT InvalidShipID EMPTY >
```

<!-- IPAM Shipment COMPLETE -->
<!-- Issued by IPAM Server at customer site to Aurigin -->

```
<!ELEMENT EODShipmentDone1.0a      ( ServerID, ShipID )>
```



1800

卷之四

FTG.18

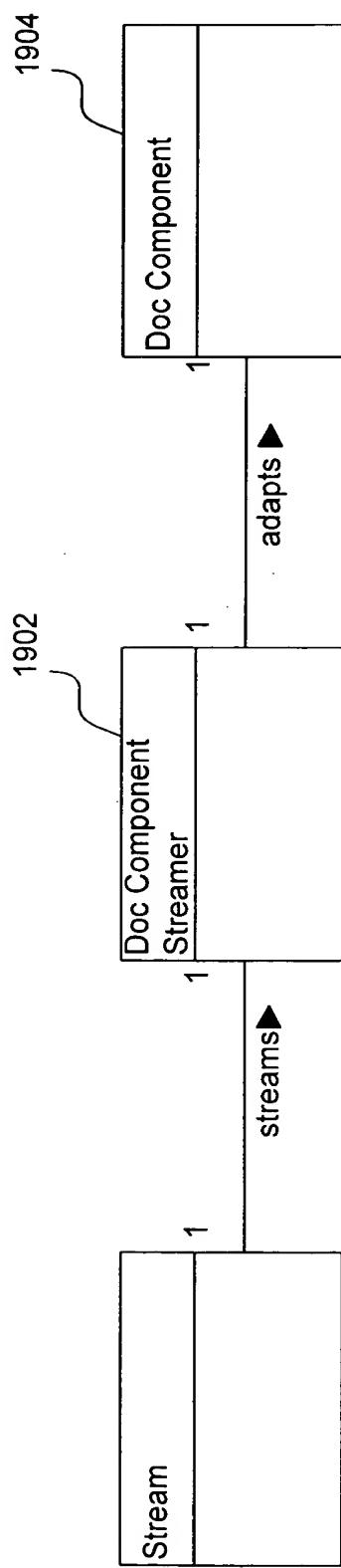
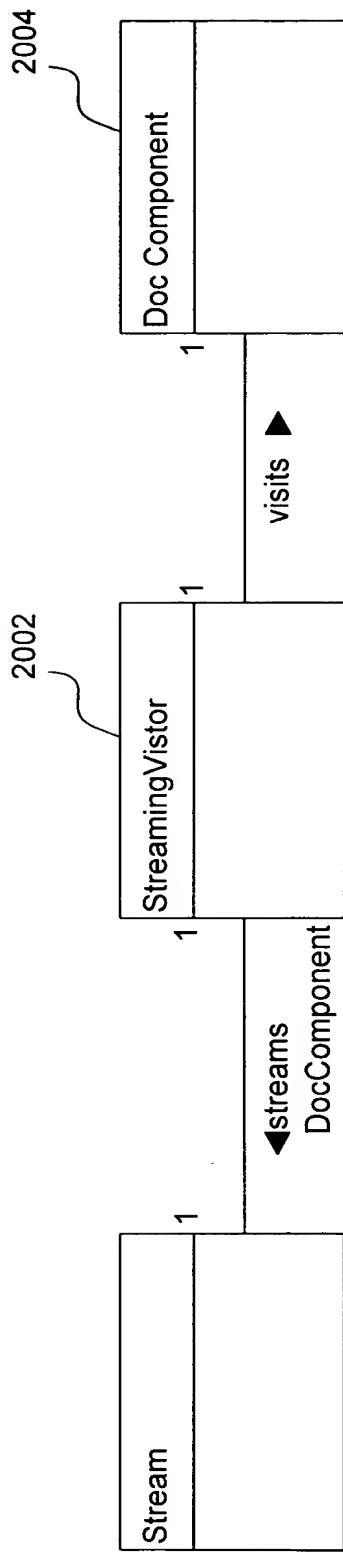


FIG. 19

FIG. 20

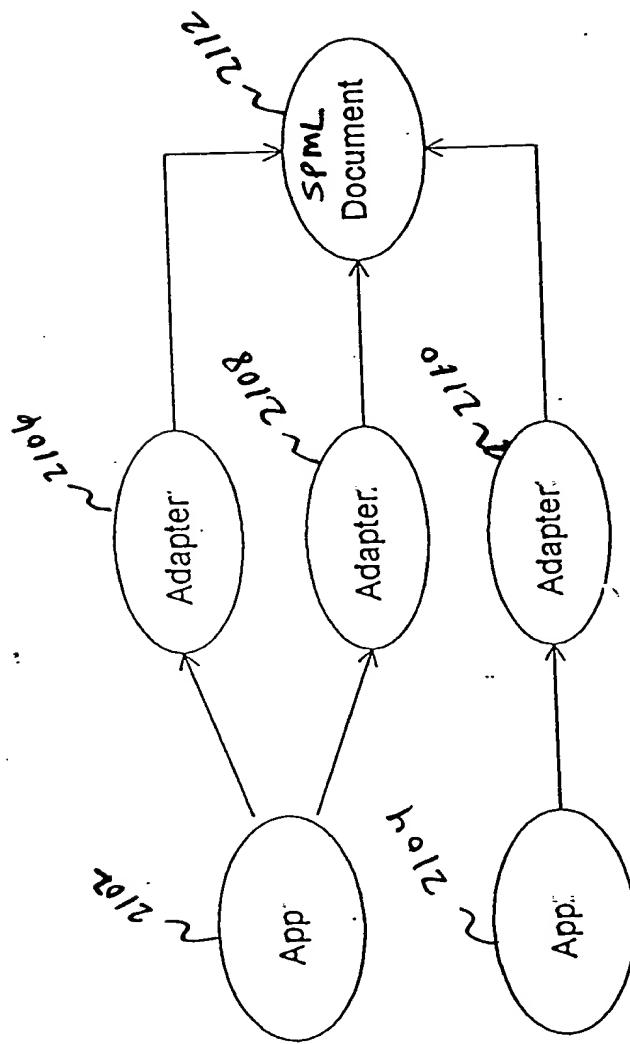


FIG. 21

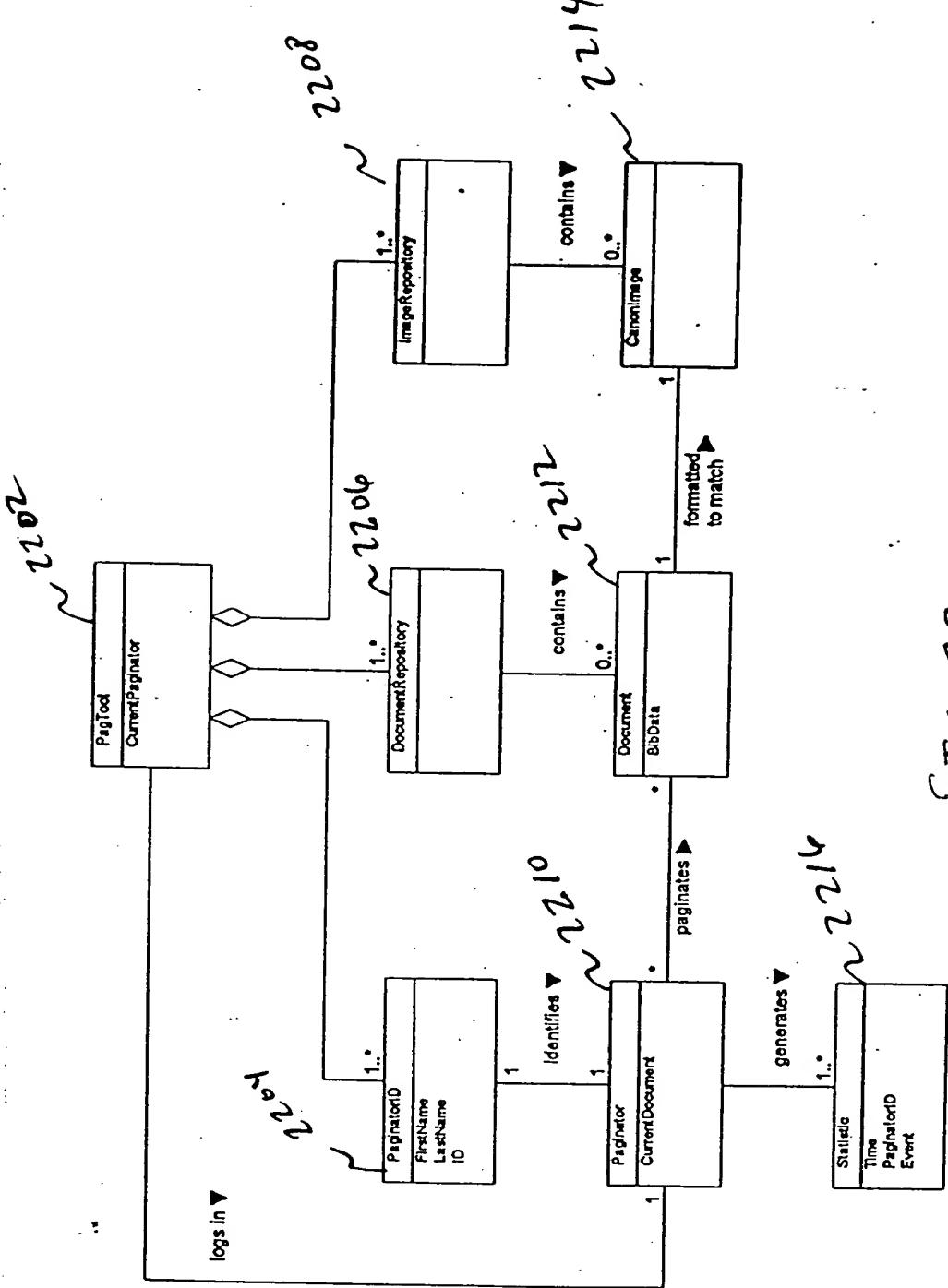


FIG 6.22